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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,482	09/23/2005	Shaobo Zhang	B-5633PCT 622410-7	6541
36716	7590	07/28/2006		
LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679				
			EXAMINER PORTIS, SHANTELL L	
			ART UNIT 2617	PAPER NUMBER

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/520,482	ZHANG, SHAOBO	
	Examiner	Art Unit	
	Shantell Portis	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The disclosure is objected to because of the following informalities: Numerous errors; inconsistency in the amendments made to the specification. For example, see page 11. Appropriate correction is required.
3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 6-8, 10, 11 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Koster, U.S. Patent No. 6,259,914.

Regarding Claim 1, Koster discloses a network for implementing localized roaming of mobile subscribers, comprising: Base Transceiver Station BTS, Base Station Controller BSC, Mobile Switching Center MSC, Visiting Location Register VLR and Home Location Register HLR; wherein further comprises at least a Roaming Number Manager RNM; said Roaming Number Manager, connected with the HLR (IRS HLR 160), is used to manage mobile phone numbers (MDN) in the home region and the contracted roaming region; said RNM takes the collection of obtained mobile phone numbers in the contracted roaming regions as a resource pool, and allocates the mobile phone numbers in the contracted roaming region to roaming subscribers dynamically (Col. 5, lines 52-67 and Col. 6, lines 1-17).

Regarding Claim 2, Koster discloses a network for implementing localized roaming of mobile subscribers according to (see claim 1), wherein said Roaming Number Manager RNM is embedded in said Home Location Register HLR (Col. 6, lines 1-17).

Regarding Claim 3, Koster discloses a method for implementing localized roaming of mobile subscribers based on the network of (see claim 1), comprising:
a. configuring the RNM with local mobile phone numbers in contracted roaming region/network, an independent PSTN/ISDN (Public Switched Telephone Network/Integrated Service Digital Network) number and a signaling point code (Col. 3, lines 16-30); b. configuring data in the entities of the contracted roaming region/network

and that of the home network, so that the subscriber location inquiry message taking the local number in the subscriber's roaming region/network as the destination address will be directed to RNM in the subscriber's home network (Col. 5, lines 32-51);

c. establishing interfaces between the RNM and entities of the contracted roaming region/network as well as between the RNM and entities of the home network (Col. 5, lines 52-67 and Col. 6, lines 1-17); and d. the subscriber utilizing the configuration in respective entities of the contracted roaming region/network and the home network to develop communication services in the roaming region/network, implementing localized roaming of the subscriber (Col. 5, lines 15-31; Col. 5, lines 52-67 and Col. 6, lines 1-17).

Regarding Claim 4, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 3), wherein said step c comprises: c1. establishing an interface between RNM and MSC (110); c2. establishing an interface between RNM and HLR (160) (Col. 6, lines 1-17).

Regarding Claim 6, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5), wherein in step d3, before allocating a mobile phone number to the subscriber, the RNM determines whether the roaming region where the subscriber's mobile phone is roaming is a contracted roaming region; if so, RNM allocates one from the available numbers in the contracted roaming region and feeds it back to HLR in the home region; otherwise RNM feeds the subscriber's number in the original home region to HLR in the home region (Col. 6, lines 1-17).

Regarding Claim 7, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 6), wherein said method also comprises: when receiving an incoming call or initiating an outgoing call, the subscriber's mobile phone processes the call utilizing the number fed back from RNM in the subscriber's home region (Col. 6, lines 30-46).

Regarding Claim 8, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5), wherein in step d2, the subscriber is informed of the allocated number by voice, short message or Unstructured Supplementary Service Data (USSD)(it is inherent for the MDN to be provided to the subscriber, this information is stored in the subscriber's mobile station and in its internal memory (NAM)-Col. 1, lines 44-62 and Col. 5, lines 1-14).

Regarding Claim 10, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5), wherein said method also comprises: when the subscriber's mobile phone leaves the contracted roaming region, the Home Location Register (HLR) in the subscriber's home region informs the Roaming Number Manager (RNM) in the subscriber's home region of the subscriber location update, the RNM in the subscriber's home region releases the mobile phone number, occupied by the subscriber, in the old roaming region, and breaks the mapping between the number and the subscriber (it is inherent that when a subscriber leaves the roaming region that the mobile number is released back into the pool of numbers for further allocating to serve international roamers-Col. 5, lines 32-51 and Col. 6, lines 1-17).

Regarding Claim 11, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 10), wherein said method also comprises: binding the number in the contracted roaming region to a certain subscriber (foreign mobile subscriber 100)(Col. 6, lines 1-17).

Regarding Claim 14, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5), wherein the subscriber location update process also comprises: d5. the HLR in the home region informing the RNM corresponding to the subscriber's old location before subscriber location update said information to RNM containing the subscriber's old location information (a comparison is made with the subscriber's information stored in the IRS HLR 160 and the information sent from the MSC 110); if there is no binding relation between the subscriber and the local mobile phone number occupied by the subscriber, RNM releasing said local mobile phone number occupied by the subscriber; and d7. RNM sends a response to HLR in the home region (Col. 6, lines 1-17).

Regarding Claim 15, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5), wherein the subscriber location update process also comprises: after receiving an acknowledgement for subscriber data (MIN and ESN) insertion from VLR (inherently part of the network architecture associated with MSC 110), HLR sending a message to the RNM in the region where the subscriber stays currently to acknowledge the number receipt (Col. 6, lines 1-17).

Regarding Claim 16, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5), wherein the subscriber location update process also comprises: if not receiving the acknowledgement for number allocation from HLR, RNM will release the allocated number (Col. 6, lines 1-17).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 9, 12, 13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koster in view of Alperovich et al. (Alperovich), U.S. Patent No. 5,978,673.

Regarding Claim 5, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 3) as mentioned above.

However, Koster fails to disclose wherein said step d comprises a subscriber location update process: d1. the Visiting Location Register VLR at which the subscriber is registered currently sends a location update request to the HLR in the subscriber's home region; d2. according to the location update request received from the VLR and the subscriber's current location, the HLR in the subscriber's home region addressing the RNM corresponding to the subscriber's current location through the RNM'S PSTN/ISDN number and informing RNM of the subscriber location update; d3. the RNM allocating a mobile phone number, i.e., a local mobile phone number in the roaming

region/network, to the subscriber, and returning said number in the roaming region/network to the HLR in the home region; and d4. the HLR in the subscriber's home region inserting said local mobile phone number in the roaming region/network in the VLR at which the subscriber is registered currently, and returning an acknowledgement message of obtaining said number in the roaming region/network to RNM.

In a similar field of endeavor, Alperovich discloses providing location-based call forwarding within a mobile telecommunications network. Alperovich further discloses wherein said step d comprises a subscriber location update process: d1. the Visiting Location Register VLR at which the subscriber is registered currently sends a location update request to the HLR in the subscriber's home region (MSC 30 is attached to VLR 50-Col. 4, lines 3-12); d2. according to the location update request received from the VLR and the subscriber's current location, the HLR in the subscriber's home region addressing the RNM corresponding to the subscriber's current location through the RNM'S PSTN/ISDN number and informing RNM of the subscriber location update (Col. 4, lines 13-33); d3. the RNM allocating a mobile phone number, i.e., a local mobile phone number in the roaming region/network, to the subscriber, and returning said number in the roaming region/network to the HLR in the home region (Col. 4, lines 44-67); and d4. the HLR in the subscriber's home region inserting said local mobile phone number in the roaming region/network in the VLR at which the subscriber is registered currently, and returning an acknowledgement message of obtaining said number in the roaming region/network to RNM (Col. 4, lines 44-67).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a system for enabling the network to reroute incoming calls to the appropriate mobile switching center serving the roaming mobile subscriber and for allowing any fees to be charged to a single subscription (Col. 1, lines 12-38).

Regarding Claim 9, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 7) as described above.

Koster fails to disclose wherein the call is processed utilizing the number fed back from RNM in the subscriber's home region in the following manner: when serving as the caller, the subscriber's mobile phone uses the number fed back from the RNM in the subscriber's home region to initiate a call; when the subscriber's mobile phone serves as the called, if the called number is the mobile phone number in subscriber's home region, MSC in the subscriber's home region inquires HLR in the subscriber's home region for the calling route, HLR finds the corresponding subscriber record, obtains address of VLR where the subscriber is roaming, and accesses said VLR to obtain routing information, with which HLR instructs MSC in the subscriber's home region to establish a calling route; if the called number is a local mobile phone number in a roaming region, MSC in the subscriber's roaming region inquires RNM for the calling route, RNM finds the subscriber identifier, then inquires the subscriber's HLR for calling route with the subscriber's identifier, and forwards the routing information returned from HLR to MSC in the subscriber's roaming region.

Alperovich discloses wherein the call is processed utilizing the number fed back from RNM in the subscriber's home region in the following manner: when serving as the

caller, the subscriber's mobile phone uses the number fed back from the RNM in the subscriber's home region to initiate a call; when the subscriber's mobile phone serves as the called, if the called number is the mobile phone number in subscriber's home region, MSC in the subscriber's home region inquires HLR in the subscriber's home region for the calling route, HLR finds the corresponding subscriber record, obtains address of VLR where the subscriber is roaming, and accesses said VLR to obtain routing information, with which HLR instructs MSC in the subscriber's home region to establish a calling route; if the called number is a local mobile phone number in a roaming region, MSC in the subscriber's roaming region inquires RNM for the calling route, RNM finds the subscriber identifier, then inquires the subscriber's HLR for calling route with the subscriber's identifier, and forwards the routing information returned from HLR to MSC in the subscriber's roaming region (Col. 3, lines 19-65).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a system for enabling the network to reroute incoming calls to the appropriate mobile switching center serving the roaming mobile subscriber and for allowing any fees to be charged to a single subscription (Col. 1, lines 12-38).

Regarding Claim 12, Koster discloses the method for implementing localized roaming of mobile subscribers as in (see claim 5) as described above.

Koster fails to disclose wherein it is according to the subscriber's IMSI (International Mobile Subscriber identifier) that said VLR in step d1 addresses the HLR in the subscriber's home region.

Alperovich discloses wherein it is according to the subscriber's IMSI (International Mobile Subscriber identifier) that said VLR in step d1 addresses the HLR in the subscriber's home region (Col. 4, lines 13-16).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enable the connecting telecommunications network to route the transmitted signal from the serving MSC to the HLR (Col. 4, lines 16-21).

Regarding Claim 13, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 5) as described above.

Koster fails to disclose wherein the information carried the location update request sent from VLR to HLR in step d1 and the parameters carried in the location update informed from HLR to RNM in step d2 comprise: the subscriber's IMSI and/or the mobile phone number in the home region, the subscriber's current location information and the subscriber's old location.

Alperovich discloses wherein the information carried the location update request sent from VLR to HLR in step d1 and the parameters carried in the location update informed from HLR to RNM in step d2 comprise: the subscriber's IMSI and/or the mobile phone number in the home region, the subscriber's current location information and the subscriber's old location (Col. lines 16-21).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enable the connecting telecommunications network to route the transmitted signal from the serving MSC to the HLR (Col. 4, lines 16-21).

Regarding Claim 17, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 3) as described above.

Koster fails to disclose wherein said step d comprises a process for calling the subscriber with the subscriber's number in roaming region/network; said process comprising the following steps: d8. when the call initiated with the called subscriber's number the roaming region/network, a GMSC in the roaming region/network initiating a route inquiry to the RNM in the region where the subscriber stays currently; d9. after receiving the inquiry request, RNM inquiring for the subscriber information according to the number in the roaming region, and inquiring HLR home region for the calling route with the subscriber's identifier; d10. the HLR in the home region returning the inquiry result RNM, which sends an acknowledgement for route inquiry to the GMSC and instructing the GMSC to establish the route with the number obtained from HLR.

Alperovich discloses wherein said step d comprises a process for calling the subscriber with the subscriber's number in roaming region/network (the GMSC 20 can be part of the PLMN 10a or 10b which either 10a or 10b can be the roaming or home network-Col. 2, lines 53-64); said process comprising the following steps: d8. when the call initiated with the called subscriber's number in the roaming region/network, a GMSC in the roaming region/network initiating a route inquiry to the RNM in the region where the subscriber stays currently (Col. 3, lines 19-30); d9. after receiving the inquiry request, RNM inquiring for the subscriber information according to the number in the roaming region (inherent for identifying the subscriber), and inquiring HLR home region for the calling route with the subscriber's identifier; d10. the HLR in the home region

returning the inquiry result RNM, which sends an acknowledgement for route inquiry to the GMSC and instructing the GMSC to establish the route with the number obtained from HLR (Col. 3, lines 19-45).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to establish a speech connection with the mobile station (Col. 3, lines 41-45).

Regarding Claim 18, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 3) as described above.

Koster fails to disclose wherein said step d also comprises a process for calling the subscriber with the subscriber's number in the home network; said process comprising the following steps: d11. when the call is initiated with the called subscriber's number in the home network, a GMSC in the home region inquiring for the route in the HLR in the subscriber's home region; after receiving the inquiry request; d12. after receiving the inquiry request, the HLR in the home region, finding its VLR number according to the subscriber's number in the home region/network, requesting the VLR at which the subscriber is registered to allocate a roaming number; d13. the VLR at which the subscriber is registered allocating a roaming number to the subscriber, and returning said number to the HLR; d14. the HLR in the subscriber's home region sending an acknowledgement for route inquiry to the GMSC in the subscriber's home region, and instructing the GMSC to establish the route with the allocated roaming number.

Alperovich discloses wherein said step d also comprises a process for calling the subscriber with the subscriber's number in the home network (the GMSC 20 can be part of the PLMN 10a or 10b which either 10a or 10b can be the roaming or home network- Col. 2, lines 53-64); said process comprising the following steps: d11. when the call is initiated with the called subscriber's number in the home network, a GMSC in the home region inquiring for the route in the HLR in the subscriber's home region (Col. 3, lines 19-30); d12. after receiving the inquiry request, after receiving the inquiry request, the HLR in the home region, finding its VLR number according to the subscriber's number in the home region/network, requesting the VLR at which the subscriber is registered to allocate a roaming number (Col. 3, lines 19-45); d13. the VLR at which the subscriber is registered allocating a roaming number to the subscriber, and returning said number to the HLR (Col. 3, lines 19-45); d14. the HLR in the subscriber's home region sending an acknowledgement for route inquiry to the GMSC in the subscriber's home region, and instructing the GMSC to establish the route with the allocated roaming number (Col. 3, lines 19-45).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to establish a speech connection with the mobile station (Col. 3, lines 41-45).

Regarding Claim 19, Koster discloses a method for implementing localized roaming of mobile subscribers according to (see claim 3) as described above.

Koster fails to disclose wherein said step d also comprises a process of sending a short message to the subscriber's number in the roaming region/network; said

process in detail comprising the following steps: d15. the Short Message Service Center SC sending a short message to Short Message Service Gateway Mobile Switching Center SMS GMSC, which initiates a route inquiry to RNM; d16. on receiving the inquiry request, RNM inquiring the subscriber information according to the number in the roaming region, and inquiring the HLR in subscriber's home region for the route with the subscriber's identifier; d17. HLR returning the MSC number or the Service GPRS Supporting Node SGSN number where the subscriber stays currently to RNM; d18. RNM sending an acknowledgement for route inquiry to SMS GMSC, to instruct the route for the short message with the MSC number or SGSN number obtained from HLR, and SMS GMSC issuing the short message.

Official Notice is taken in that the same procedure for establishing a call connection with the roaming subscriber according to Alperovich mentioned above can also be applied when sending short messages. It would have been obvious to also include short messages to provide for a variety of well known fast and easy options for communicating.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bharatia et al., U.S. Patent No. 6,615,037 discloses a method apparatus and system for call forwarding when roaming from a first type network to a second type network in a communication system.

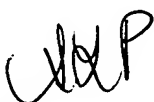
Houde et al., U.S. Patent No. 5,978,678 discloses a cellular telephone network routing method and apparatus for internationally roaming mobile stations.

Uchiyama et al., U.S. Patent No. 5,884,169 discloses a roaming mobile communication system and method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantell Portis whose telephone number is 571-272-0886. The examiner can normally be reached on Monday-Friday 7:00am-3:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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